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ABSTRACT

Faculty members at Idaho State University evaluated the use of case analysis as an accountability measure for demonstrating teacher candidates' abilities to meet targeted course, institutional, and state teaching standards for student motivation and classroom management. Thirty-four teacher candidates completed a case analysis assessment. Predictive validity was explored by comparing the teacher candidates' case analysis scores with the teaching observation scores they received during a field-based internship. The findings support the generalizability of case analysis ratings made on the basis of a standards-based scoring rubric. The ratings were shown to differentiate levels of performance in accordance with those standards. Support for the content validity of the case analysis assessment was obtained by applying criteria for judging the content representativeness of performance assessments suggested by Crocker (1997), including realism, frequency, necessity, and importance of the targeted teaching behaviors to actual practice. The findings also support one aspect of the predictive validity of the case analysis assessment for appraising candidates' overall ability to manage a public school classroom. Evaluation worksheets used in study and published by the College of Education, Idaho State University, are appended. (Contains 22 references. (Author/SM)

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The use of complex case analysis to make visible the quality of teacher candidates

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Abstract

Faculty members at Idaho State University evaluated the use of case analysis as an accountability measure for demonstrating teacher candidates' abilities to meet targeted course, institutional, and state teaching standards for student motivation and classroom management. Thirty-four teacher candidates completed a case analysis assessment. Predictive validity was explored by comparing the teacher candidates' case analysis scores with the teaching observation scores they received during a field-based internship. The findings support the generalizability of case analysis ratings made on the basis of a standard-based scoring rubric, and the ratings were shown to differentiate levels of performance in accordiance with those standards. Support for the content validity of the case analysis assessment was obtained by appying criteria for judging the *content representativeness* of performance assessments suggested by Crocker (1997), including *realism*, *frequency*, *necessity*, and *importance* of the targeted teaching behaviors to actual practice. The findings also support one aspect of the predictive validity of the case analysis assessment for appraising candidates' overall ability to manage a public school classroom.

Using Complex Case Analysis to Make Visible the Quality of Teacher Candidates

Teacher education programs across the nation are being expected to meet higher requirements for accountability than ever before. In response to the call from The National Commission on Teaching and America's Future (What Matters Most, 1996), which asked states to set high standards for what teachers should know and be able to do, many states have recently adopted rigorous new standards for beginning teacher certification. These same states are now searching for ways to obtain clear and convincing evidence that prospective teachers are able to meet the newly set standards. Consistent with this move to higher standards, the National Council for Accreditation of Teacher Education (NCATE, 2000) has established new unit accreditation standards requiring teacher education programs to document the ability of their graduates to meet institutional and state standards. To effectively respond to these mandates and demands for accountability, institutions that prepare teachers must develop and implement assessment systems that yield defensible evidence regarding their graduates' ability to meet institutional and state standards. Concomitantly, there is considerable concern in the education community about over-reliance on the use of paper-and-pencil tests for this purpose. Thus, there is a need to explore alternative methods of assessment that yield credible evidence of accountability for teacher candidates' performance with respect to beginning teacher certification standards.

At Idaho State University, we are exploring teacher candidates' abilities to analyze complex cases as an alternative accountability measure. Cases are descriptions of highly contextualized and complex activities representing an authentic snapshot of reality at a particular moment in time, such as how a teacher has managed a difficult class over an observed period of time.

Cases try to capture the richness of lived experience and the dynamic complexity of real life. To successfully analyze an assigned case, the reader (a teacher education candidate in this instance) must place himself or herself in the position of the main actor in the case and imagine himself or herself confronted with the same decisions or difficult problems. Next, the reader must analyze the actions of all of the participants in the case as they relate to the main issues of the case. This

requires the ability to apply reasoning and principles to the complexities of the case (Forman & Rymer, 1999). Finally, the reader is asked to consider how they might do things differently and why.

Responding to a case requires knowledge of appropriate alternatives based on theories, principles, and evidence, and the ability to formulate a deliberate action plan that applies this knowledge to the context of the case (Forman & Rymer, 1999, Merseth, 1991). Because a case analysis requires evaluative choices and confronts beginning teachers with the need to justify ethical and moral decisions, a cases analysis may also serve as a means for evaluating teacher education candidates' performance with respect to dispositional standards (Luckowski, 1997).

Case method teaching has long been associated with professional schools in business, law, and medicine (Forman & Rymer, 1999). In the last decade, many educators have advocated the use of cases as a way to enhance the quality of teacher education (e.g., Bliss & Mazur, 1998; Colbert, Trimble & Desberg, 1996; Merseth, 1991). Case methods have also been successfully utilized in teacher education programs to help teacher candidates to better understand the complex nature of classroom management (Adler, 1996). If cases can be used as instructional tools, it is a logical extension to consider using them for the purpose of assessment as well.

We could find little research, however, to support the use of case analysis as an assessment measure (other than the use of a case write-up to demonstrate understanding of the case itself). We were also disappointed to find there was a paucity of evidence to support the claim that analyzing cases improves teaching performance (see however, Kleinfeld, 1998). Thus, a major purpose of our investigation was to explore whether or not performance on a case analysis could provide credible evidence of candidate performance relative to standards and whether or not that evidence generalized to actual teaching situations.

Our study addresses the development of guidelines and a standards-based scoring rubric for a case analysis portfolio entry produced by teacher education candidates as partial documentation of their ability to meet program and state standards related to classroom

management and student motivation. We also examined the inter-rater reliability, content representatives (content validity), and one aspect of the predictive validity of our case analysis assessment. Among the questions addressed were: Can teacher education faculty agree sufficiently about the important issues in a case to be able to determine whether or not teacher education candidates have responded effectively? Can case analyses be used to differentiate the performance of teacher education candidates with respect to program and state teaching standards? Can these differences be reliably scored by a panel of raters? If the variability in performance can be reliably scored, does it predict actual practice when candidates are confronted with the problems of classroom management during an early internship experience?

Method

Teacher Candidate Participants

Eighteen elementary and 16 secondary education teacher candidates who agreed to participate in this study completed the case analyses. There were 8 males and 26 females. One candidate was Hispanic; the remaining candidates were non-Hispanic caucasians. Their average age was $M = 27$ years old (varying from 21 to 44 years old). All of the teacher candidates were enrolled in a junior-level course on student motivation and classroom management during the 2001 spring semester. All teacher candidates are required to take this course and complete the case analysis prior to admission to student teaching. The candidates received the cases and guidelines for completing the case analysis from their course instructors. They completed the cases independently and without the direct assistance of their instructors.

Case Analysis Assessment

Faculty members who taught the motivation and management course identified five target standards the teacher candidates were to demonstrate through the completion of the case analysis. The case analysis standards (see Appendix A) were designed to reflect behaviors teachers might use in a problem-solving approach to motivation and management issues and were aligned with Idaho State University's *Beginning Teacher Core Standards and Indicators* (College of Education,

1995) and the *Idaho Core Teacher Standards* (Idaho Board of Education, 2000).

The same faculty members also developed the Case Analysis Guidelines (See Appendix B). The guidelines contained a description of the case analysis assignment and directions for completing the case analysis matrices and formatting the written product. The cases were selected from the text, *Case Studies for Teacher Problem Solving* (Silverman, Welty, & Lyon, 1996). Separate cases focusing on broad issues of motivation and management, not just issues of order and control, were selected for elementary and secondary education teacher candidates. The case selected for elementary education candidates was Case 1: Marsha Warren. The case selected for secondary education candidates was Case 12:Frank Oakley: The Classroom.

The case analysis assessment required the teacher candidates to read and to analyze a complex caset. After they read their assigned case, the candidates identified the significant issues related to student motivation and the creation of effective classroom environments, and issues related to student conduct and misbehavior. Next, for each issue they: (1) identified the actions taken (or inaction) by the teacher or students, (2) analyzed the issues and actions according to the concepts and principles presented in their motivation and management course, (3) provided alternative strategies, and (4) wrote a rationale for each alternative strategy citing concepts and principles taught in their motivation and management course. The teacher candidates recorded their analyses on the matrices presented in Appendix B.

Case Analysis Scoring Rubric and Scoring Procedures

Using the case analysis standards a scoring rubric was developed to evaluate the teacher candidates' performance and to provide specific feedback to the candidates regarding their performance on each of the targeted standards (See Appendix C). The scoring rubric specified each standard along with a set of indicators for each standard. The indicators served as the criteria for judging performance relative to the standards (See Appendix C). Each of the five standards was rated on a 4-point scale: 0 = *Standard Not Met*; 1 = *Standard Partially Met*; 2 = *Standard Met*; 3 = *Exemplary Performance*. A total score was computed by summing the scores across the five

standards measured on the rubric.

Case Analysis Raters

Four faculty members with experience teaching the motivation and management course scored the $N = 34$ case analyses. Prior to scoring the cases, the faculty members assembled to review the cases and reach a consensus on the key issues presented in each case. The issues identified were associated with major topics taught in the candidates' course on motivation and management. The faculty members also spent time discussing application of the standards-based scoring rubric and the indicators for each standard. Each faculty member rated independently all 34 case analyses collected for this study. All identifying information was removed from each case analysis prior to distributing them to the raters.

Validity Assessment Panel

Five teachers with experience teaching elementary school (grades K - 6) and five teachers with experience teaching in secondary schools (grades 7-12), served as the validity assessment panel for this study. Some of the teachers had experience teaching in both elementary and secondary schools. The teachers had an average of $M = 15.7$ years (ranging from 3-25 years) of teaching experience. Five of the teachers had bachelor degrees and 5 of the teachers had masters degrees. Three of the teachers were National Board Certified.

Content Validity Questionnaire

A questionnaire based on a performance assessment validation process developed by Crocker (1997) was used to assess the *content representativeness* of the case analysis assessment. The questionnaire first asked the validity assessment panel to evaluate the degree of alignment between the Case Analysis standards, guidelines, and scoring rubrics. The panel members were next asked to evaluate the degree to which Crocker's criteria for content representativeness were met. The first criterion was how *frequently* beginning teachers would be expected to engage in the teaching behaviors targeted in the case analysis in actual job performance. This was evaluated on a five-point scale of (1) *never*, (2) *monthly*, (3) *weekly*, (4) *daily, or* (5) *hourly*. The second criterion

was *the importance or criticality* of those behaviors to actual teaching. This was judged on a four-point scale of (1) *not at all important*, (2) *somewhat important*, (3) *important*, or (4) *absolutely important*. The third criterion was the *realism* of the tasks to actual classroom practice. This criterion was also judged on a four-point scale from (1) *not at all realistic* to (4) *absolutely realistic*. The fourth criterion was the degree to which the tasks *represented* the targeted standards. The panel members were asked to judge this on a four point scale of: (1) *not at all representative*, (2) *somewhat representative*, (3) *representative*, or (4) *very representative*. The validity assessment panel was also asked to assess the degree to which the tasks performed while completing the case analysis and the performance indicators on the scoring rubric assessed any of the ten Idaho Core Teacher Standards (Idaho Board of Education, 2000). Finally, the assessment panel was asked to respond to four overall questions about the validity of the case analysis assessment as a performance assessment and accountability measure .

Procedures for Assessing Content Validity

The assessment panel completed the content validity questionnaire during a two-hour session after school. The panel members first read the case analysis standards, guidelines, and scoring rubric. Next, they read either the elementary teacher case or the secondary teacher case selected for use in this study. After reading the cases, the panel members then read several case analyses produced by the teacher candidates. Finally, they responded to the items on the content validity questionnaire and completed a short demographic questionnaire about their own background and teaching experience.

Procedures for Collecting Predictive Validity Data

Our teacher education candidates take our Motivation and Management course prior to completing a semester long, half-time internship in the public schools. This initial internship is attached to a junior-level course, titled *Planning, Delivery and Assessment*. The instructors for this course supervise the teacher candidates during their initial field placement. The teacher candidates are expected to carry forth the concepts and theories learned in our course on Motivation and

Management and to apply them during this initial internship experience. To assess the performance of the candidates during the field placement, the supervisors make multiple observations of each candidate's teaching performance using a standard form called the *Teaching Performance Scoring Rubric*. This rubric was previously developed by our teacher education faculty (College of Education, 2000).

The *Teaching Performance Scoring Rubric* has a sub-scale with standard and indicators for *Management of the Learning Environment (MLE)*. The MLE standard (College of Education, 2000, p. 2) is "The teacher creates and maintains a safe and effective learning environment." The indicators (College of Education, 2000, p. 2) of the standard are: (1) "Creates a smoothly functioning learning environment in which students work collaboratively and independently to complete purposeful learning activities and in which students assume responsibility for themselves and one another;" (2) "sets and maintains clear expectations for communication and behavior;" (3) "selects and uses effective strategies for handling behavior problems;" (4) "organizes and manages resources of time, space, activities, and attention to create a safe and effective learning environment." This standard was rated on a three-point scale of: (0) *Standard Not Met*, (1) *Standard Partially Met*, or (2) *Standard Met* for each teaching observation. Our program supposes our teacher candidates will have received much of the knowledge, skills, and dispositions needed to achieve this standard from our Motivation and Management course.

Of the 34 teacher candidates participating in this study, 20 were enrolled in the *Planning, Delivery and Assessment* course during the fall of 2001. As a result, the course instructors were asked to send us the Management of the Learning Environment sub-scale scores for these candidates after their initial observation of their teaching performance. These observations were to be made when the candidates had initial charge of the activities of the entire class. We received MLE scores for 19 of the 34 teacher candidates who completed case analyses for this study.

Design & Data Analysis

To assess the consistency of the scores on our analytic scoring rubric made by our panel of

raters, we applied concepts from *Generalizability Theory* (Shavelson & Webb, 1991). We computed a dependability coefficient for absolute decisions for the case analysis scores using formulas provided by Shavelson and Webb (1991). Generalizability Theory provides a summary coefficient reflecting the level of dependability of raters that is similar to a reliability coefficient (Shavelson & Webb, 1991). We also kept track of and analyzed the amount of time it took to score the two sets of case analyses. Predictive Validity was determined by computing the relationship between the analytic scores on the case analyses and the Management of the Learning Environment sub-scale scores these same teacher candidates received in the Fall Semester 2001 during their first field placement (EDUC 309 Planning, Delivery & Assessment 6 credits.) The level of significance for all statistical analyses was set at .05.

Results

Interrater Reliability

We computed total score dependability coefficients for absolute decisions based on our case analysis scoring rubric for four independent raters using formulas provided by Shavelson and Webb (1991). The repeated measures analysis of variance for the overall effect of rater across all 34 case analyses was not statistically significant, $F(3, 99) = 1.34$, $MSE = 2.82$, $p = .27$. Examining the effect of rater separately for the elementary school cases analyses ($n = 18$) and the secondary school case analyses (n = 16) also revealed no significant effect for rater, $F(3, 51) = .09$, $MSE = 3.11$, $p = .97$ and $F(3,45) = 2.67$, $MSE = 2.48$, $p = .06$, respectively.

Table 1 presents the variance components used in the formulas for computing the dependability coefficients. The four rater coefficient of dependability for all 34 case analyses was .92. For the 18 elementary cases analyses, the four rater coefficient of dependability was .87 and for the 16 secondary case analyses, the four rater coefficient of dependability was .91. The single rater coefficients of dependability were .75, .77, and .72 respectively. Adjusting the number of raters included in the formulas revealed dependability coefficients from .84 to .87 could be achieved with as few as two raters. Overall, these findings suggest case analyses can be scored with

sufficient inter-rater agreement to make decisions regarding the quality of teaching performance. The above findings also support the use of the average rating of the four raters as benchmark scores for future case analyses written for these cases and for the training and calibrating of future raters.

Insert Table 1 about here

Differentiation of Teaching Competence

Based on the average rating each case analysis received from our panel of four raters, we classified our candidates' performances into different levels of competence according to the degree to which each performance met our standards. To be judged and classified as *Proficient* on all standards, our candidates must have received an average total rating of 10 or higher. The course instructors agreed that an average total performance of 13 or higher would be regarded as *Exemplary* performance. Thus, the Proficient category ranged from an average total performance of 10 to 12.9 and the Exemplary category ranged from an average score of 13 through a perfect average score of 15. Case Analysis performances receiving average total scores between 5 and 9.9 points were classified as *Developing*, because in general the standards were only partially met. Cases Analysis performances receiving average total scores below 5 were classified as *Beginning*, because in general the standards were not met. Using the above criteria, $n = 4$ (11.8%) of the case analysis performances were judged to be at the Beginning level, $n = 19$ (55.9%) of the performances were judged to be Developing, $n = 8$ (23.5%) were judged to be Proficient, and $n = 3$ (8.8%) were judged to be Exemplary. Hence, our results show the analysis of complex cases can be use to differentiate teacher candidates' performances into four distinct levels along a developmental continuum from beginning level to highly proficient performance on the basis of the degree to which our teacher candidates have demonstrated their ability to meet targeted program and state teaching standards.

Time Required to Score Case Analyses

We next considered the amount of time necessary to reliably score case analysis performances using our Case Analysis Rubric. The average time for scoring the 34 cases analyses by the four raters was $M = 7.9$ minutes with a standard deviation of $SD = 3.5$ minutes. One of the raters took consistently longer to score than the others with $M = 12.5$ minutes as compared to $M = 7.0$ minutes, $M = 6.2$ minutes, and $M = 6.0$ minutes for the other three raters respectively. Fortunately, the time spent scoring was not statistically significantly correlated with the case analysis scores, $r = .15$, $n = 136$ (34 cases by 4 raters), $p = .08$. These data show the time it takes to reliably score cases analysis performances is well within a range that is realistic and practical for accountability assessment purposes. It should be noted, however, these times are for scoring time only and did not include the time it would take to provide written comments or corrective advise to each candidate about his or her performance.

Content Validity

To support the validity of our Case Analysis assessment for making judgments about teacher candidates' performance with respect to program standards and state certification requirements, we applied criteria suggested by Crocker (1997) for judging the *content representativeness* of performance assessments. Our first consideration was the *adequacy of the alignment* among the Case Analysis Guidelines, scoring rubric, and targeted standards (e.g, the assessment domain). Table 2 presents the judgments made by our panel of expert raters. All the raters thought there was a high degree of alignment between the Case Analysis Guidelines and the targeted standards. Ninety percent of the raters thought there was high alignment between the Case Analysis Guidelines and the scoring rubric. All of the raters also indicated that there was a high degree of alignment between the targeted standards and the scoring rubric.

Insert Table 2 about here

We next asked our panel of experts to consider the degree to which the case analysis performance tasks reflected and represented each of the targeted standards. Table 3 presents the number and percentage of the raters judging each targeted standard to be represented by the tasks required in the case analysis. It is clear from looking at table 3, the tasks were considered to be *representative* of the targeted standards. For all but one of the standards, 100% of the raters thought the tasks were representative or very representative. For the standard of using the professional literature to provide a rationale and research support for practices, 90% of the assessment panel thought the tasks required by the case analysis were representative or very representative of that standard.

Insert Table 3 about here

We also asked the assessment panel to rate the *importance* of the teaching behaviors targeted by the case analysis to the success of our candidates as teachers. Table 4 presents the number and percentage of the panel members judging each targeted behavior to be of importance. All of the targeted behaviors were rated as important or very important with 70% or more of the assessment panel rating them as very important. These results support the criticality criteria for valid performance assessment.

Insert Table 4 about here

The *frequency* of the teaching behaviors in job performance was assessed by asking our assessment panel how often they would expect a beginning teacher to engage in each of the tasks required by the case analysis during the course of his or her professional practice. Table 5 presents the number and percentage of the panel members indicating how frequently from never to hourly they would expect each of the targeted teaching behaviors. As can be seen from the table, all but

one of the targeted behaviors was considered to be a high frequency activity for teachers with 70% or more of the raters endorsing a frequency level of daily or hourly. The targeted behavior considered to be of a lower frequency (i.e., monthly) by half of the raters was the behavior of providing a rationale for management practices to administrators, parents, other teachers, or students. Comments related to this item indicated the assessment panel had difficulty separating the different audiences for the rationale mentioned in this item. In general, the raters thought providing a rationale for actions to students was a high frequency activity, but providing a rationale to administrators, parents, and other teachers would happen less often. All together, these results support the frequency criteria necessary for valid performance assessment.

Insert Table 5 about here

The *realism* of the tasks required by the case analysis was also assessed by our assessment panel. Table 6 presents the number and percentage of the raters judging the tasks to be realistic. Across all of the tasks, 80% or more of the panel members thought the tasks were realistic or very realistic to success as a classroom teacher. Amazingly, 80% of the raters thought adhering to format requirements and expressing ideas using standard English free from mechanical and spelling errors was a very realistic requirement for success as a classroom teacher. As one teacher on the panel stated, "Teachers are required to follow the format and to complete forms properly all of the time and we are expected to do so using standard English." Together, these results provide favorable support for meeting the realism criteria for authentic performance assessment.

Insert Table 6 about here

Additionally, we asked the assessment panel to respond to four questions concerning the validity of the case analysis assessment overall. The first question was, "Overall, does the Case Analysis measure knowledge and skills that are *necessary* for a beginning teacher?" The results were 10% (n = 1) of the raters said they were "somewhat necessary," 30% (n = 3) said they were "necessary," and 60% (n= 6) said the were "absolutely necessary." The second question asked, "Overall, *how critical* to the practice of a beginning teacher are the skills and strategies the Case Analysis requires teacher candidates to demonstrate?" The response percentages were the same. Ten percent of the raters (n =1) said "somewhat critical," 30% (n = 3) said "critical," and 60% (n = 6) said "absolutely critical." The third question asked, "Overall, does the case analysis present teacher candidates with *realistic* situations similar to ones they might encounter in professional practice as a teacher?" Here 100% of the panel members said the situations were realistic (n = 1) or very realistic (n = 9). The final question was, "Overall, how *appropriate* is it to use the case analysis assessment as one measure of a beginning teacher's competency?" Two of the panel members (20%) thought the case analysis was "somewhat appropriate," four of the panel members (40%) thought it was "appropriate," and four of the panel members (40%) thought it was "absolutely appropriate." The panel members who thought it was only somewhat appropriate said the performance levels might be too much to expect from a beginning teacher. Together, the responses to these questions support the overall validity of the use of a complex case analysis as a performance assessment for judging beginning teaching competence with respect to targeted program standards.

Our final consideration was the extent to which the performances required by the case analysis directly assessed any of the Idaho Core Teacher Standards (Idaho State Board of Education, 2000). The teacher education program standards targeted by the case analysis

assessment were directly linked to two of the ten Idaho standards and probably were implicitly related to several others. However, the case analysis was not designed to be a direct measure of all of the Idaho standards. Accordingly, we asked our panel of experts to indicate the extent to which the tasks required for the case analysis measured the Idaho Core Teacher Standards (Idaho State Board of Education, 2000) using a scale of (1) *Not At All*, (2) *Implicitly*, and (3) *Directly*. Table 7 presents the number and percentage of the responses for each standards. Clearly, some Idaho standards were considered to be directly measured, while others were judged to be implicitly measured or not at all. Importantly, both of the standards directly targeted were thought to be directly measured by 100% and 90% of the our assessment panel members. These findings support the validity of our case analysis assessment as a direct measure of our candidates' ability to meet some of the Idaho Core Teaching Standards. Our findings also suggest complex case analyses supply credible evidence of candidate performance for accountability purposes.

Predictive Validity

We assessed the predictive validity of the cases analysis scores by correlating both the average total scores on the case analysis and the average scores across raters for each case analysis standard with the teacher candidates' Management of the Learning Environment (MLE) sub-scale scores. The MLE scores were not significantly correlated with the average total scores on the case analysis, $r = .45$, $n = 19$, $p = .055$. The relationship was positive, but did not reach statistical significance given the small number of candidates for whom we had obtained both scores. However, the MLE scores ($n = 19$) were found to be significantly correlated with the scores on the *Rationale* standard, $r = .46$, $p = .048$. This means the candidates' use of the professional literature on motivation and management to provide a theoretical rationale and research support for educational practices when completing a case analysis positively predicted MLE scores when our candidates were later observed managing students in a public school classroom. No other significant correlations were found between the scores on the case analysis standards ($n = 19$) and the MLE scores, $r = .28$, $p = .26$ for *Issue Identification*, $r = .34$, $p = .15$ for *Analysis*, $r = .34$, $p =$

.16 for *Alternative Strategies*, and $r = .36$, $p = .13$ for *Format and Usage*. However, the direction of all of these correlations was in a positive direction, and merit further investigation when we are able to collect scores for a larger number of our candidates.

Discussion

We examined the use of case analysis as an assessment tool because of the potential for cases to provide a rich and realistic context for the appraisal of teacher candidates' application of the shared knowledge, skills, and dispositions valued by a professional teaching community. Our cases were selected because they could be thematically linked to the motivation and management standards of our program. Our first concern was whether teacher education faculty members could agree sufficiently about the important issues in a case to be able to determine whether or not the teacher education candidates had responded effectively to them. We also wanted to know whether our teacher candidates could analyze an assigned case from the perspective of the professional knowledge base, and not just their own personal knowledge and experiences, and produces responses that could be reliably scored.

The findings of our study demonstrate teacher education faculty members can reach consensus about the significant issues of a complex case as they relate to course topics and they can score sets of case analyses with a high degree of inter-rater agreement. We found the overall four rater dependability of the case analysis scores to be .92. We also found dependability coefficients with magnitudes of .84 to .87 could be achieved with as few as two raters. This means a very high proportion of the differences among the scores on our case analysis rubric reflect differences in actual levels of performance (absolute decisions) that can be generalized over raters. From a practical standpoint, this also means absolute decisions can be made about the performance levels of teacher candidates using only a few raters.

One reason we obtained such high inter-rater agreement may have been the highly structured nature of our case analysis assessment. The teacher candidates were limited to a maximum of ten pages of content. Eight of those pages were constrained to very structured

matrices. The matrix format prompted the teacher candidates to supply specific types of information within the space afforded by the format. The candidates responses were then scored using a common rubric with clearly articulated performance indicators linked to standards. This approach is quite different from how others have assessed candidates understanding of a case. Assessment approaches have included activities such as responses to essay questions (Vesper & Adams, 1972), presentations in a public forum (Kuntz & Hessler, 1998; McNergney, Herbert & Ford, 1994), the develop of concept maps (Adler, 1996), case write-ups from personal and professional knowledge (Mostert & Sudzina, 1996), and case analysis papers responding to a structured set of questions (Kleinfeld, 1991). Each of these approaches may provide different insights into the knowledge candidates have gain from their examination of a case. In this study, we have shown teacher candidates' responses to a structured case analysis assessment can be scored with sufficient consistency to make absolute decisions about their performance levels with respect to program and state teaching standards.

Validity of Case Analysis Assessment

The next major concern of this study was whether completion of a case analysis would be judged to provide valid and credible evidence of teacher candidate performance relative to program and state standards. This study found support for the validity of a case analysis assessment of teaching performance focused on standards with respect to student motivation and classroom management. According to our validity assessment panel, the scores derived from our case analysis rubric meet the criteria for *content representativeness* stated by Crocker (1997), including realism, frequency, necessity, and importance (or criticality). The case analysis assessment was also found to appraise the application of knowledge, skills, and dispositions that were representative of those used in actual teaching situations. Although slightly removed form actual classroom practices, the analysis of a complex case was judged to provide teacher candidates with a valid opportunity to demonstrate their abilities to meet targeted program and state teaching standards.

Differentiation of Levels of Competence

To provide credible evidence for making judgments about teacher candidates' performance with respect to program standards and state certification requirements, case analyses must also be shown to differentiate levels of competence in accordance with those standards and requirements. Our findings demonstrated candidates' performances can be differentiated along a continuum from beginning to exemplary on the basis of whether or not the standards targeted by the case analysis were met. Importantly, slightly less than a third of our candidates were judged to be proficient or exemplary with respect to the standards set for our cases analysis assessment. This finding suggests we need to determine ways to improve our program if we are serious about helping our candidates achieve the program standards with respect to motivation and management. However, this also means our case analysis assessment does provide a clear way to measure important aspects of what our teacher candidates know and can do. Thus, our case analysis assessment will also serve as an effect tool to measure whether or not our program has improved. It should be noted, however, the teacher candidates for this study were volunteers; we do not yet know whether these percentages are representative of all the teacher education candidates in our program. Nevertheless, we have established this important first step to the use of case analysis assessment to document candidate performance levels.

Predictive Validity

Kleinfeld, (1998) has shown the predictive validity of the use of cases-based instruction on the cross-cultural teaching skills of teacher education candidates. Our study indicates the ability to analyze a case effectively by providing a rationale for suggested alternative decisions and strategies predicts the initial ability of teacher candidates to manage a public school classroom during instruction. Together, these studies support the idea that cases provide an authentic means of assessment that predicts candidates' abilities to teach. The evidence at this point is modest. We only found a statistically significant relationship for the one standard addressing the ability to provide a rationale for suggested motivation and management practices (although all of the correlation coefficients from this small study were in a positive direction). We are currently in the

process of refining this part of our investigation and conducting a larger study. Still, the fact that we found a predictive link at all is important, because according to Darling-Hammond and Snyder (2000, p. 524), "studies of the predictive validity of traditional paper-and-pencil tests of teaching (for example, the National Teacher Examinations) have found little evidence that such tests are correlated with teacher ratings or teachers' classroom effectiveness." Alternatively, our study does provide some initial modest support for the predictive validity of an authentic and context rich form of teacher assessment via case analysis.

Of considerable interest is our finding that it was candidate differences in their ability to generate a rationale for proposed alternative actions linked to course concepts and principles that best predicted later ratings of their actual classroom management. One of the claims most often made on behalf of case-based instruction is that it "encourages *reflective practice and deliberate action*" (Merseth, 1991, p. 16). When responding to cases candidates must build and evaluate their own action plans in light of contemporary theories and principles of best practice in a way that integrates their theoretical, practical, and contextual knowledge. The ability of candidates to perform such integrations may be an important factor to their success as teachers. As one of our assessment panel members commented, "one thing to stress in preparation of education students is to be reflective and to understand that there is a rationale behind teaching decisions. The stronger and, in my opinion, more marketable teacher education graduates are those who look beyond the instructional materials and the acquired management practices to analyze and to reflect upon the rationale behind their choices as an educator." Our data support this opinion of a highly experienced and National Board Certified classroom teacher. They also support the view that case analysis is a viable means to determine which teacher candidates are best able to do this.

Conclusion

Our results suggest case analysis has great promise as one alternative to traditional paper-and-pencil tests for judging teacher candidate performance that is benchmarked against standards. Because the Idaho Core Teacher Standards (Idaho State Board of Education , 2000) are based on

the Interstate New Teacher Support and Assessment Consortium standards (INTASC, 1992), our findings are also likely to generalize to other teacher education programs whose state and program standards are based on or similar to the INTASC standards. Accordingly, data from case analyses might be included as one method for providing evidence of candidates' abilities to meet such standards required for unit accreditation (National Council for Accreditation of Teacher Education, 2000).

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Table 1

Estimates of Variance Components of the Person and Rater Facets for the Case Analysis Ratings

	Variance Components		
Source	Overall	Elementary Case	Secondary Case
Person	8.561	9.989	7.217
Rater	.027	-.157	.259
Residual	2.822	3.106	2.481

Table 2

Number and Percentage of Expert Raters Indicating Alignment Between Case Analysis Guidelines, Targeted Standards and Scoring Rubric (N = 10)

Alignment Considerations	Degree of Alignment			
	Poor 1	Low 2	Moderate 3	High 4
Alignment of the Case Analysis Guidelines with the targeted standards				10 100%
Alignment of the Case Analysis Guidelines with the scoring rubric			1 10%	9 90%
Alignment of the scoring rubric with the targeted standards				10 100%

Table 3

Number and Percentage of Expert Raters Indicating the Degree to Which the Tasks Required by the Case Analysis Reflect and Represent the Targeted Standards (N = 10)

Targeted Standards	Degree of Representativeness			
	Not at all Representative 1	Somewhat Representative 2	Representative 3	Very Representative 4
The teacher considers different theories of motivation and management when confronted with classroom motivation and management problems in order to identify all significant issues and aspects relevant to both simple and complex problem situations.			4 40%	6 60%
The teacher analyzes teacher-student interactions in complex motivation and management situations using theories of motivation and management to identify needed adjustments to enhance social relationships, student motivation and engagement in learning, or to maintain a safe and effective learning environment.			2 20%	8 80%
The teacher selects and uses effective strategies drawn from the professional literature for handling motivation and management problems and to make adjustments to practice.			3 30%	7 70%
The teacher uses the professional literature on motivation and management to provide a theoretical rationale and research support for educational practices.		1 10%	1 10%	8 80%
The teacher adheres to format requirements and models professional (standard) English usage in writing.			2 20%	8 80%

Table 4

Number and Percentage of Expert Raters Indicating the Importance of the Teaching Behaviors Targeted by the Case Analysis to Success as a Classroom Teacher(N = 10)

Teaching Behaviors Targeted By Case Analysis Portfolio Entry	Degree of Importance			
	Not at all Important 1	Somewhat Important 2	Important 3	Very Important 4
Identify significant issues relevant to simple and complex motivation and management problem situations.			3 30%	7 70%
Analyze teacher-student interactions.			1 10%	9 90%
Identify needed adjustments to enhance social relationships, student motivation and engagement in learning, or to maintain a safe and effective learning environment.			1 10%	9 90%
Select and use effective strategies for handling motivation and management problems and to make adjustments to practice.			2 20%	8 80%
Provide a rationale to administrators, parents, other teachers, or students to support motivation and management practices.		1 10%	2 20%	7 70%
Adhere to format requirements and model professional (standard) English grammar and spelling in all written communication to administrators, parents, other teachers, or students.			2 20%	8 80%

Table 5

Number and Percentage of Expert Raters Indicating How Frequently They Would Expect a Teacher to Engage in the Teaching Behaviors Targeted by the Case Analysis (N = 10)

Teaching Behaviors Targeted By Case Analysis Portfolio Entry	Never	Monthly	Weekly	Daily	Hourly
Identify significant issues relevant to simple and complex motivation and management problem situations.			2 20%	3 30%	5 50%
Analyze teacher-student interactions.			3 30%	3 30%	4 40%
Identify needed adjustments to enhance social relationships, student motivation and engagement in learning, or to maintain a safe and effective learning environment.			3 30%	3 30%	4 40%
Select and use effective strategies for handling motivation and management problems and to make adjustments to practice.			3 30%	3 30%	4 40%
Provide a rationale to administrators, parents, other teachers, or students to support motivation and management practices.		5 50%		3 30%	2 20%
Adhere to format requirements and model professional (standard) English grammar and spelling in all written communication to administrators, parents, other teachers, or students.				3 30%	7 70%

Table 6

Number and Percentage of Expert Raters Indicating How Realistic the Tasks Required by the Case Analysis Are to Success as a Classroom Teacher (N = 10)

Tasks Required By the Case Analysis Portfolio Entry	Degree of Realism			
	Not at all Realistic 1	Somewhat Realistic 2	Realistic 3	Very Realistic 4
Identification of all significant issues and aspects relevant to complex motivation and classroom management problems presented in a realistic case situation.		2 20%	4 40%	4 40%
Analysis of motivation and management problems present in a realistic case situation to identify all appropriate and needed adjustments warranted by the facts of the case.		2 20%	2 20%	6 60%
Identification of multiple effective motivation and management strategies and adjustments to practice that address all key issues of a realistic case situation.		1 10%	4 40%	5 50%
Demonstration of knowledge of how to implement alternative motivation and management strategies and adjustments to practice as they apply to a realistic case situation.			2 20%	8 80%
Provision of broad and convincing justifications for stated strategies and practices as they apply to a realistic case situation, which are supported by an appropriate knowledge of the professional literature and the terminology used by teachers and related educational professionals.			5 50%	5 50%
Written expression of ideas about a realistic case situation models professional (standard) English usage, is free of mechanical and spelling errors, and adheres to format requirements.			2 20%	8 80%

Table 7

Number and Percentage of Expert Raters Indicating the Extent to Which the Tasks Required by the Case Analysis Assess the Idaho Core Teacher Standards (N = 10)

Standard	Not at all	Implicitly	Directly
The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) taught and creates learning experiences that make these aspects of subject matter meaningful to students.	2 20%	7 70%	1 10%
The teacher understands how students learn and develop, and provides opportunities that support their intellectual, social, and personal development.		7 70%	3 30%
The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to learners with diverse needs.		5 50%	5 50%
The teacher understands and uses a variety of instructional strategies to develop students' critical thinking, problem solving, and performance skills.	2 20%	3 30%	5 50%
The teacher understands individual and group motivation and behavior and creates a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.			10 100%
The teacher uses a variety of communication techniques including verbal, nonverbal, and media to foster inquiry, collaboration, and supportive interaction in and beyond the classroom.	1 10%	4 40%	5 50%
The teacher plans and prepares instruction based upon knowledge of subject matter, students, the community, and curriculum goals.	2 20%	7 70%	1 10%
The teacher understands, uses, and interprets formal and informal assessment strategies to evaluate and advance student performance and to determine program effectiveness.	5 50%	3 30%	2 20%
The teacher is a reflective practitioner who demonstrates a commitment to professional standards and is continuously engaged in purposeful mastery of the art and science of teaching.		1 10%	9 90%
The teacher interacts in a professional, effective manner with colleagues, parents, and other members of the community to support students' learning and well-being.	4 40%	3 30%	3 30%

Appendix A

Case Analysis Standards

Issue Identification

Standard: The teacher considers different theories of motivation and management when confronted with classroom motivation and management problems in order to identify all significant issues and aspects relevant to both simple and complex problem situations.

Analysis

Standard: The teacher analyzes teacher-student interactions in complex motivation and management situations using theories of motivation and management to identify needed adjustments to enhance social relationships, student motivation and engagement in learning, or to maintain a safe and effective learning environment.

Alternative Strategies

Standard: The teacher selects and uses effective strategies drawn from the professional literature for handling motivation and management problems and to make adjustments to practice.

Rationale

Standard: The teacher uses the professional literature on motivation and management to provide a theoretical rationale and research support for educational practices.

Format & Usage

Standard: The teacher adheres to format requirements and models professional (standard) English usage in writing.

Appendix B

Case Analysis Guidelines -*Elementary*

Portfolio Entry

As part of the requirements for EDUC 302 Motivation and Management, you will complete a Case Analysis to be included as a portfolio entry in your Teacher Education Portfolio. This handout describes the requirements for your case analysis.

Case Analysis Assignment

For your case analysis, read the assigned case involving student motivation and classroom management issues. Conduct an independent analysis of the case using the attached matrices [see attached matrices 1 to 4]. Using Matrix #1 identify: (1) the significant issues related to motivation and the creation of effective learning environments warranted by the case description (Issue Identification), (2) the actions taken (or inaction) by the teacher or students, and (3) your analysis of the issues based on motivation and management course principles (**cite the principles**). Then, using Matrix #2, for the same issues you identified in Matrix #1, (4) provide alternative strategies, and (5) provide a rationale for each alternative strategy you suggest and justify your belief in its probable effects using the motivation and management principles discussed in EDUC 302 (cite them). Do the same thing for issues related to student conduct and misbehavior using Matrix #3 and Matrix #4. See attached copy of the scoring rubric for this assignment.

Assigned Case

Case 1: Marsha Warren in Silverman, R., Welty, W., & Lyon, S. (1996). *Case studies for teacher problem solving (second edition).* New York: McGraw-Hill. This book is on reserve in the Oboler Library.

Targeted Core Standards

The specific standards and performance indicators for the case analysis assignment are contained in your copy of the scoring rubric (see separate handout). This assignment will give you the opportunity to demonstrate your ability to meet the following targeted core standards of the Teacher Education Program:

Standard 2: Professional Studies and Research. The teacher uses alternative theoretical perspectives and research to guide instructional decision-making and reflection on practice.

Standard 7: Management of the Learning Environment. The teacher creates and maintains a safe and effective learning environment.

Content Directions

Provide an insightful overview of the general case situation and the teacher and student characteristics (do not exceed one double-spaced page). Then, using your own matrices modeled after the ones attached (single spaced word-processed), identify the significant issues and problems in your assigned case. Matrix #1 addresses motivation and prevention. Matrix #3 addresses classroom management and student misbehavior. Use Matrix #2 and Matrix #4 to provide your alternative strategies and your rationale for suggesting them. Close your paper with a one-page

section stating any additional conclusions you reached regarding the case overall and the insights you gained from this assignment that are applicable to your own teaching (do not exceed one double-spaced word-processed page).

Format Directions

Your case analysis should be complete, but it cannot exceed 11 pages total [1 cover page with overview, a maximum of 8 matrix pages, 1 conclusions page and 1 references page]. You must use standard 12 point typeface for the first and last page of your report. You may use 10 point typeface inside each matrix. The following fonts are preferred: Palatino, Arial, Geneva, or Times New Roman. The margins must be one inch on all sides, except for the matrix pages (follow the models supplied). Do NOT put your paper in any kind of cover or binder. **Staple all pages together in the upper left hand corner (do not use a paper clip).** Type your name, section number, and the date in the upper right hand corner of the first page (the overview page). Title your assignment with the name of the case you analyzed (centered on the first page--which is the same page as your overview of the case).

To receive full credit, your case analysis must be well organized and well written. Your grammar, usage, expression of ideas, and editorial style should be consistent with the APA Style Manual (4th edition). Citation of references should also follow APA style. Be sure to proof read your paper to eliminate spelling and punctuation errors.

Due Date

Your case analysis is due: